Tennessee Folic Acid Council
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FOLIC ACID:
A Vitamin That Could Change A Life Forever

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Sample Script

SLIDE 1: Folic Acid: A Vitamin That Could Change A Life Forever

CLICK *(wait until animation ends)*

Every day in America, five (5) babies are born with birth defects of the brain or spine that might have been prevented.

Each year, 3000 pregnancies in the U.S. are affected with birth defects of the brain or spine -- many of them because women did not know that a B-vitamin called folic acid could help their baby get a healthier start.

Today, I want to tell you about a campaign of the Tennessee Folic Acid Council, a partnership between the Tennessee Department of Health, the March of Dimes and many community organizations, to tell women about the preventative benefits of folic acid --and to get women to take enough folic acid EVERY day.

Because this month nearly 170 babies will be born with birth defects of the brain and spine … because mothers did not know.

SLIDE 2: Course Outline

These are the questions I'll be addressing today:

- What is Folic Acid?
- What Are Neural Tube Defects (NTDs)?
- How Do NTDs Occur?
- What are the Consequences of Neural Tube Defects?
- Who Needs Folic Acid?
- What are the Recommended Levels of Folic Acid?
- Who Needs More Than the Basic Level of Folic Acid?
- How Do You Get Enough Folic Acid?

But before we start, please note that this presentation does not constitute medical advice and is presented for educational purposes only.

- Always consult your health care provider for specific questions related to your health.
- Women with a prior NTD-affected pregnancy require higher dosages of folic acid and need to consult a health professional for the appropriate level.
- Women should not take more than 1,000 micrograms of folic acid per day without the advice of a health care professional.

Now, let's explore what the term, folic acid, means.

SLIDE 3: What is Folic Acid?

Folic acid is one of the water-soluble B vitamins. The word *folate* comes from the Latin *folium,* as in leafy foliage. In general, *folate* and *folacin* are used when referring to the form found naturally in foods, while *folic acid* refers to the synthetic form used in supplements and fortified foods.

Through scientific research in the past 20 years, we now know that folic acid can prevent up to 70% of birth defects of the brain and spinal cord called neural tube defects (NTDs) when taken BEFORE pregnancy and in the early weeks of pregnancy.

Besides helping to prevent certain birth defects, folic acid plays other important roles during pregnancy:

- A pregnant woman needs extra folic acid to help produce the additional blood cells she needs.
- Folic acid also is crucial to support the rapid growth of the placenta and fetus.
- Folic acid is needed to produce new DNA (genetic material) as cells multiply. Without adequate amounts of folic acid, cell division could be impaired, possibly leading to poor growth in the fetus or placenta.
- Although not conclusive, there is some evidence that use of folic acid before and during pregnancy may prevent other types of birth defects, including:

- ✓ Cleft lip and cleft palate
- ✓ Some congenital heart defects
- ✓ Limb-reduction defects
- ✓ Urinary tract defects

In recent years, the scientific community has come to realize that folic acid is very important for EVERYONE in maintaining health because:

- Folic acid plays an important role in production of normal red blood cells.
- More recent studies suggest that folic acid also may help prevent heart disease and stroke.
- Other studies suggest that folic acid also may help prevent certain cancers, especially colon cancer.

So it is very important that EVERYONE knows about the health benefits of folic acid. But it is CRITICAL that every woman capable of getting pregnant knows about the benefits of folic acid in preventing up to 70% of neural tube defects.

SLIDE 4: Neural Tube Defects--How Do They Occur?

The neural tube is the embryonic structure that develops into the brain and spinal cord. This structure starts out as a flat pancake of cells and normally folds into a tube by the 29th day of pregnancy--BEFORE most women know they are pregnant. When the neural tube does not close completely, the baby has a neural tube defect.

Demonstration: (Hold up one sheet of paper.) Think of this piece of paper as the neural tube. When there is enough folic acid, the neural tube forms completely and the baby's brain and spine are intact (roll paper into a tube-shape). When there is not enough folic acid, the neural tube may not form properly and the baby's brain and spine are incomplete (roll paper into a partial tube-shape).

Once the neural tube has formed--by the 29th day of pregnancy--it's too late to prevent neural tube defects. For prevention to work, folic acid must be taken BEFORE pregnancy.

SLIDE 5: Most Common NTDs

The most common NTDs are spina bifida and anencephaly.

SLIDE 6: Anencephaly

Anencephaly is a condition in which the upper end of the neural tube fails to close. The brain and skull fail to develop completely or are totally absent. Babies born with anencephaly die before or shortly after birth.

SLIDE 7: Spina Bifida

Spina bifida is a condition in which the lower end of the neural tube fails to close. A sac of fluid sometimes protrudes through an opening in the back and a portion of the spinal cord is often contained in this sac. Paralysis of the infant's legs, loss of bowel and bladder control, water on the brain (hydrocephalus), and learning disabilities may occur. The severity of paralysis is largely determined by the spinal nerves involved. In general, the higher the sac on the back, the more severe the paralysis. Spina bifida is a leading cause of childhood paralysis.

SLIDE 8: Neural Tube Defects (NTDs)

About 60% of all neural tube defects result in spina bifida and about 30% in anencephaly. Encephalocele, which accounts for about 10% of neural tube defects, is a very serious birth defect that results in a hole in the skull through which brain tissue protrudes. Most babies with encephalocele do not live or are severely retarded.

SLIDE 9: The High Cost of NTDs

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Financial Costs:

The monetary cost of spina bifida is staggering.

- In 2000, spina bifida was associated with over $11 million in health care costs at Tennessee hospitals and clinics.
- Folic acid education and prevention efforts make financial sense. But, the money involved does not address the physical and emotional toll upon the families affected.

Physical Costs:

During 2000, 24 babies with spina bifida were born to Tennessee residents. Many infants born with spina bifida pay a high price through a lifetime of …

- Poor bowel and bladder control
- Decreased mobility, caused by varying degrees of paralysis. Spina bifida is the leading cause of childhood paralysis in the U.S.
- Learning disabilities are also costs many children with spina bifida must endure.
- About 90% of infants born with the most severe spina bifida have hydrocephalus, or fluid on the brain. When the cerebrospinal fluid, which cushions and protects the brain and spinal cord, is unable to drain normally, fluid collects in and around the brain, causing the head to become enlarged. Without treatment, mental retardation and other neurological damage may result.
- Infants born with more severe forms of spina bifida are subjected to many surgical procedures throughout their early lives.
- According to the Spina Bifida Association of America, 18-73% of children with spina bifida are

allergic to latex (natural rubber), possibly due to intense exposure during surgeries and medical procedures.
- Finally, health problems can become worse as children with spina bifida get older.

Emotional Costs:

In 2000 and 2001, anencephaly resulted in 15 infant deaths in Tennessee. All infants born with anencephaly are stillborn or die shortly after birth. A family who has lost a child to a neural tube defect knows the agonizing grief of anticipating a normal birth, only to have their dreams shattered when they learn that their baby is not expected to survive.
- According to one study, the risk of early death among infants with open spina bifida in the U.S. is 10%.
- Infants with spina bifida who survive may grow up feeling "different" due to their life-long disabilities.
- The physical disabilities may increase risk for psychosocial maladjustment.

SLIDE 10: Factors Associated with Increased Risk of NTDs

- Spina bifida and other neural tube defects occur more frequently among Hispanics and whites of European extraction, and less commonly among African-Americans, Ashkenazi Jews and most Asian ethnic groups.

- Although scientists believe that genetic and environmental factors may act together to cause neural tube defects, 95% of babies with a NTD are born to parents with no family history of these disorders.

- Historically, in the United States, NTD rates have been higher in the East, particularly in the Appalachian region, than in the West. Similar geographic-based NTD rate variations have been observed in other countries also. Why these variations occur is not known but may be due to socio-economic levels, race/ethnicity, or other factors.

- In one study of 23,000 pregnancies, use of hot tubs almost tripled the rate of NTDs. Sauna bathing almost doubled the rate of NTDs. Fever over 100 degrees almost doubled the rate of NTDs. And, a combination of two of the three heat exposures raised the NTD rate six times.

Other factors associated with increased risk for a neural tube defects are:

- Maternal insulin-dependent diabetes

- Maternal use of some anti-epileptic drugs,

- Medically diagnosed obesity has been linked to increased incidence of NTDs.

- Women with a previous NTD-affected pregnancy are at increased risk for another pregnancy affected by a NTD. If one child in the family has spina bifida, the risk of recurrence in any subsequent pregnancy is about 1 in 40. If there are two affected children, the risk in any subsequent pregnancy is about 1 in 20. Note that in the general population spina bifida occurs in 1 of every 2,000 live births.

- Family history of Neural Tube Defects--on either the mother or father's side of the family--increases the risk of having a NTD affected pregnancy.

- Rates of anencephaly and spina bifida are usually higher in groups with lower socioeconomic status, possibly due to nutritional deficiencies.

SLIDE 11: Folic Acid - Who Needs It?

About 2,500 children are born each year in the United States with a neural tube defect.

If all women took folic acid before getting pregnant and during the early weeks of pregnancy, the number of babies born with a neural tube defect could decrease by as much as 70%.

Approximately 50% of all pregnancies are unplanned. Neural tube defects occur in the first 28 days of pregnancy--before most women know they are pregnant. It is, therefore, critical for every woman capable of becoming pregnant to develop a habit of taking a multivitamin on a daily basis to ensure that her system contains enough folic acid to protect against a preventable NTD.

Pregnant women also need to take folic acid during pregnancy to assist with healthy cell development.

Folic acid has no known toxic level, nevertheless it is recommended that women take no more than 1,000 micrograms of synthetic folic acid per day unless directed by a physician.

Even though there are several ways to get 400 micrograms of folic acid everyday, two-thirds of women in the U.S. do not consume adequate amounts of folic acid. A March of Dimes poll conducted by the Gallup organization in 2000 revealed that only 1 in 3 women reported taking a multivitamin containing folic acid every day.

With growing evidence that folic acid may fight heart disease, as well as colon and cervical cancers, EVERY-ONE needs to supplement his/her diet with folic acid--

INCLUDING MEN!

SLIDE 12: CDC Recommendation

The Centers for Disease Control and Prevention (CDC) has issued the public health message: "All women of childbearing age in the United States who are capable of becoming pregnant should consume 400 micrograms of folic acid per day for the purpose of reducing their risk of having a pregnancy affected with a Neural Tube Defect. Women who have had prior NTD-affected pregnancy are at risk of having a subsequent affected pregnancy."

This CDC recommendation resulted from two prior federal policy decisions.

SLIDE 13: Policy Recommendation: U. S. Public Health Service

In 1992, the U.S. Public health Service issued the recommendation: "All Women of childbearing age capable of becoming pregnant should consume 400 micrograms of folic acid daily."

SLIDE 14: Policy Recommendation: Institute of Medicine

In 1998, the Institute of Medicine, Committee on Dietary Intakes, strengthened the recommendation: "...women capable of becoming pregnant should take 400 micrograms of synthetic folic acid daily ... in addition to consuming food folate from a varied diet."

Every woman from the time she starts her period (as young as 10 years of age) is "capable" of getting pregnant.

SLIDE 15: Stretch Break

Would everyone please stand up and stretch. (Wait momentarily for participants to stretch, then proceed.)

- **(Click)** If you use any kind of tobacco product, sit down.
- **(Click)** If you do not wear your seat belt every time you get into the car, sit down.
- **(Click)** If you abuse food or alcohol, sit down.
- **(Click)** If you do not have a regular exercise program, sit down.
- **(Click)** If you do not take a multivitamin or eat a cereal fortified with high levels of vitamins and minerals, sit down.

SLIDE 16. Getting Enough Folic Acid

The correct amount of folic acid (400 micrograms) is found in most over-the-counter multivitamins.

Lesser amounts of folic acid can also be found in foods with natural folate.

SLIDE 17: Foods Naturally High in Folic Acid

Foods that are naturally high in folic acid include:

- Liver
- Nuts, including peanut butter

Other ways to increase folic acid in the diet are to:

Eat dried beans several times a week. Serve them as a main dish instead of a meat or add them to soups, salads, and casseroles.

Eat raw fruits and vegetables.

Add fresh vegetables such as spinach, broccoli or romaine lettuce to tossed salads.
To maintain a healthy diet, women (and men) should be follow the food pyramid which recommends eating two to four servings of fruit and three to five servings of vegetables every day.

But even when you eat according to the food pyramid, it is hard to get enough folic acid:

- 1/3 cup of roasted peanuts provides only 109 micrograms of folate (peanuts are loaded with fat).
- 1/2 cup of pinto beans contains 147 micrograms of folate.
- 1 medium orange contains 47 micrograms of folate.
- 1/2 cup of cooked lentils or black-eyed peas contains 179 micrograms of folate.

SLIDE 18: Fortified Grain Products

Beginning January 1, 1998, the U.S. Food and Drug Administration requires manufacturers of grain products to fortify their products with 140 micrograms of folic acid per 100 grams of grain product. Foods required to be fortified include:

- Flour and bread products
- Corn grits and corn meals
- Farina and rice
- Macaroni and noodle products
- Breakfast cereals

It is estimated that the addition of this amount of folic acid fortification of the grain supply will prevent only about 5-20% of folic acid-preventable NTDS.

People who want to get their folic acid from food should consider eating breakfast cereals containing 400

micrograms of folic acid, but not all cereals are fortified at 100% of the daily requirement. Food labels should be checked to determine how many micrograms are available in each serving.

This slide shows some of the growing number of cereal options that are fortified with 100% of daily requirement for folic acid .

SLIDE 19: Easiest Way

But, the EASIEST way to get folic acid is by taking a multivitamin containing 400 micrograms of synthetic folic acid every day. Synthetic folic acid is nearly 100% bioavailable (capable of being absorbed into the bloodstream).

The average American woman's diet includes about 200 micrograms of folate found in foods. It is nearly impossible to get 400 micrograms of folic acid from diet alone due to the sheer volume of food required to reach the recommended level.

In addition, food processing, preparation and cooking can reduce the amount of food folate by up to 50%.

So, the EASIEST way to get 400 micrograms of folic acid every day is to take a multivitamin.

SLIDE 20: Changing Behavior and Diet

Incorporating behavioral and dietary changes is not particularly easy. Healthy eating and folic acid supplementation will be made easier when individual customs and lifestyle habits are incorporated into every day activities and in meal planning.

It is important to remember that it is easier to change behavior when a change is linked to an already established habit, i.e., taking a multivitamin every morning while brushing teeth.

From teens to older women (and men), getting enough folic acid every day is a good habit to start--for good health and for prevention of neural tube defects.

SLIDE 21: Your Help is Needed!

We will not reduce the rate of neural tube defects unless women of childbearing age change their behavior and begin incorporating 400 micrograms of folic acid into their diet every day.

You can help develop a healthy baby by educating women who are CAPABLE of getting pregnant that they need folic acid every day.

SLIDE 22: Folic Acid Awareness

Since 1995, the March of Dimes has commissioned the Gallup organization to conduct a nationwide survey of women age 18-45 about awareness and behavior related to folic acid. In 2000, 64% of Tennessee women age 18-44 surveyed were aware of folic acid, only 18% reported taking a multivitamin regularly. While awareness has increased over the years, the number of women who actually take a multivitamin every day remains around 20%.

What this means is that 80% of women (8 out of 10 women) probably do not get enough folic acid each day and, if pregnancy occurred, their babies could be at increased risk for a neural tube defect.

SLIDE 23: Doctors Who Recommend Folic Acid Make a Difference!

Physicians and other health care professionals who recommend folic acid regularly to their female patients make a big difference in whether or not women take folic acid:

- In a study published in the Canadian Family Physician, 71% of women took folic acid upon their health care provider's recommendation
- But only 17% of the women took folic acid without their health care provider's recommendation.
- Yet, in a March of Dimes, Tennessee Chapter, Survey of Primary Health Care Providers in the fall of 2000, only 25% of respondents reported that they always recommend folic acid to females of childbearing age.

SLIDE 24: Number of Babies Born to Tennessee Teen Moms

A teenage mother is at greater risk than women over age 20 for pregnancy complications such as premature labor, anemia and high blood pressure. These risks are even greater for teens who are under 15 years old.

But the reality is that over 10,000 babies were born to teenage moms in Tennessee during 2002.

SLIDE 25: How Can YOU Help?

- Begin taking a multivitamin with folic acid NOW for your health.
- Or, eat breakfast cereals fortified with 100% (400 micrograms) of the daily requirement for folic acid.
- Spread the word about the health benefits of folic acid to every woman you know because every day in America, seven (7) babies are born with a neural

tube defect that might have been prevented.

SLIDE 26: Resource List

If you would like more information, you can contact one of the following resources:

- Tennessee Department of Health 615-741-8530
  Web Site: www.state.tn.us/health
- March of Dimes National Office: 1-888-MODIMES
  National Web Site: www.marchofdimes.com
- March of Dimes, Tennessee Chapter:
  - ✓ Chattanooga 423-267-7172
  - ✓ Jackson..... 901-668-1023
  - ✓ Johnson City 423-461-8840
  - ✓ Knoxville 865-694-6003
  - ✓ Memphis 901-385-8580
  - ✓ Nashville 615-399-3200
- Centers for Disease Control and Prevention
  Web Site: www.cdc.gov/ncbddd/folicacid
- Your Health Care Provider
- Your Regional or County Health Department

THE END